City of Raleigh

Stormwater Plan

Updated May 2015

PERMIT NO. NCS000245
TO DISCHARGE STORMWATER UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

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I. Executive Summary

The City of Raleigh has revised and expanded its Stormwater Plan for satisfying requirements of the National Pollutant Discharge Elimination System (NPDES) Stormwater Permit No. NCS000245. This NPDES Stormwater Permit became effective on March 1, 2013 and expires on February 28, 2018.

This Stormwater Plan has been updated to reflect changes in several program areas based on insights from internal audits and an EPA permit compliance inspection in 2012. In addition, this Stormwater Plan has been expanded to address new requirements that have been included in the current NPDES Stormwater Permit issued to the City of Raleigh.

Programs that have already been implemented by the City of Raleigh include Public Involvement, Illicit Discharge Detection and Elimination, Construction Site Runoff Controls, Post-Construction Site Runoff Controls, Public Education and Outreach, Industrial Site Monitoring, and Water Quality Assessment and Monitoring. This Stormwater Plan includes updates for each of these programs.

II. Stormwater Plan

The City of Raleigh's National Pollutant Discharge Elimination System (NPDES) Stormwater Permit No. NCS000245 was renewed on April 24, 2013. This permit is effective from March 1, 2013 through February 28, 2018.

This permit authorizes the City of Raleigh to discharge stormwater from the Municipal Separate Storm Sewer System (MS4), located within the City of Raleigh corporate limits, into the receiving waters of the State within the Neuse River Basin.

This updated Stormwater Plan details the stormwater management program, including for each of the measures identified in the permit: a narrative description of the program, a table that identifies each best management practice (BMP) used, the frequency of the BMP, the goals for each BMP, the implementation schedule, funding, and the responsible position for implementation.

A. Program Implementation

The following sections of this plan describe the practices and programs the City will develop, implement, and manage in order to comply with the conditions of its permit. Implementation of the program is subject to reviews by DENR.

A.1 Stormwater Program Elements

This Stormwater Plan includes eight program elements, summarized below.

1. Opportunities for the public to participate in program development and implementation and to comply with applicable state and local public notice requirements.
2. Programs to detect and eliminate illicit discharges to the City's Municipal Separate Storm Sewer System (MS4), address significant contributors of pollutants to the MS4, implement appropriate enforcement procedures and actions, maintain a map showing the City's major MS4 outfalls to state waters receiving discharges, and inform employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.
3. Programs to reduce pollutants in stormwater runoff from construction activities disturbing greater than 12,000 square feet of land surface and to provide procedures for public input, sanctions to ensure compliance, requirements for construction site operators to implement appropriate erosion and sediment control practices, review of site plans, and procedures for site inspection and enforcement of control measures.
4. Programs to manage stormwater runoff from development that drains to the City's MS4 and disturbs greater than 12,000 square feet of land surface, to provide a mechanism requiring long-term operation and maintenance of BMPs, and to ensure controls are in place to minimize water quality impacts.

5. Programs to prevent or reduce stormwater pollution from municipal operations through pollution prevention and good housekeeping techniques.
6. Programs to distribute educational materials to the community, conduct public outreach activities, raise public awareness on the causes and impacts of stormwater pollution, and inform the public on steps they can take to reduce or prevent stormwater pollution.
7. Programs to monitor and control pollutants in storm water discharges to the City's MS4 from hazardous waste treatment, storage, disposal, and recovery facilities, and from industrial facilities subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and from industrial facilities the City determines are contributing or have a potential to contribute substantial pollutant loading to the municipal stormwater system.
8. Programs to evaluate the impacts on water quality through the implementation of a water quality assessment and monitoring plan.
9. Programs to evaluate strategies and tailor practices to address pollutants of concern in TMDL listed streams within Raleigh's corporate limits.

B. Public Involvement

B.1 Program Narrative

The objectives of this program are to provide opportunities for the public to participate in program development and implementation and to comply with applicable state and local public notice requirements. This is achieved through the application of a variety of Best Management Practices (BMPs) detailed below.

B.2 Best Management Practices

Administer a Public Involvement Program

The City administers a public involvement program as described below.

Allow the Public an Opportunity to Review and Comment on the Stormwater Plan

At least once every permit cycle, the Stormwater Plan will be reviewed by the Stormwater Management Advisory Commission and subsequently presented at a meeting of the Raleigh City Council for public comment.

Organize a Volunteer Community Involvement Program

The City's Stormwater Management Division intends to maintain three volunteer programs: the Adopt-A-Stream Program, the Storm Drain Marking Program, and the Volunteer Water Quality Monitoring Program provided there is sufficient continuing interest.

Establish a Mechanism for Public Involvement

The Stormwater Management Advisory Commission serves as the official citizen advisory board to the Raleigh City Council on issues related to the Stormwater

Program policies. The Commission was established in 2003 by City ordinance found in the Raleigh Municipal Code. The Commission advises City Council and staff on matters pertaining to policy changes, stormwater services and reviews the annual Capital Improvement Program. The Commission serves as a liaison between the City and the citizens of the community. The Commission consists of members residing within the Raleigh City limits appointed by City Council to overlapping two-year terms. The Commission's monthly meetings are public under NCGS §143-318 and are advertised as such.

Establish Hotline/Helpline

The main phone number for the City's Stormwater Management Division serves as the water pollution helpline.

B.3 Frequency of Best Management Practice

BMP	Frequency
a. Administer a Public Involvement Program	Ongoing
b. Allow the public an opportunity to review and comment on the Stormwater Plan	Once every permit cycle
c. Maintain a volunteer community involvement program	Ongoing
d. Maintain a mechanism for public involvement	Typically monthly
e. Maintain a hotline/helpline	Ongoing

B.4 Measurable Goals

BMP	Measurable Goals
a. Administer a Public Involvement Program	Implement a Public Involvement Program.
b. Allow the public an opportunity to review and comment on the Stormwater Plan	Conduct at least one public meeting during the five-year permit cycle to allow the public an opportunity to review and comment on the Stormwater Plan.
c. Maintain a volunteer community involvement program	Maintain a volunteer stormwater-related program designed to promote ongoing citizen participation. Examples may include: sponsoring and participating in Big Sweep, forming partnerships with local businesses, Adopt-A-Stream, promoting volunteer presentations, creek crawls, storm drain marking, and poster contests
d. Maintain a mechanism for public involvement	Continue regular public meetings of the Stormwater Management Advisory Commission.
e. Maintain a hotline/helpline	Maintain phone and other reporting mechanisms.

B.5 Implementation Schedule

BMP	Implementation Schedule
a. Administer a Public Involvement Program	Ongoing
b. Allow the public an opportunity to review and comment on the Stormwater Plan	Once per permit cycle
c. Maintain a volunteer community involvement program	Ongoing
d. Maintain a mechanism for public involvement	Regular (public meetings of the SMAC)
e. Maintain a hotline/helpline	Ongoing

B.6 Funding

This program is funded through the City of Raleigh Stormwater Utility.

B.7 Responsible Positions

This program responsibility is assigned to one or more of the following positions in the Stormwater Management Division:

Volunteer community involvement programs:
- Stormwater Program Manager
- Senior Project Engineer
- Stormwater Business Manager
- Project Engineer I
- Water Quality Technicians
- Stormwater Education Specialist

Stormwater Management Advisory Commission:
- Stormwater Program Manager

Phone line and other reporting mechanisms:
- Administrative Assistant

C. Illicit Discharge Detection and Elimination

C.1 Program Narrative

The objectives of this program are to detect and eliminate illicit discharges to the City's Municipal Separate Storm Sewer System (MS4), address significant contributors of pollutants to the MS4, implement appropriate enforcement procedures and actions, maintain a map showing the City's major MS4 outfalls to Waters of the State, and inform employees, businesses, and the general public of hazards associated with illegal discharges. These objectives are achieved through a variety of Best Management Practices detailed below.

C.2 Best Management Practices

Develop/implement Illicit Discharge Detection and Elimination Program

The Illicit Discharge Detection and Elimination Program follows the guidelines provided in the most recent version of the Public Works Department, Stormwater Management Division Standard Procedure *SW-100 Internal Illicit Discharge Detection and Elimination.* The Illicit Discharge Detection and Elimination Program will be evaluated periodically.

Modify as necessary and maintain appropriate legal authorities

The City's Illicit Discharge Ordinance was adopted in 1995 by Ordinance 1995-573, was amended in 2011, and is found in the Raleigh Municipal Code. The City will consider modifying this ordinance as necessary to maintain its authority to comply with NPDES permit conditions.

Maintain a storm sewer system base map including major MS4 outfalls

The City maintains an inventory of the major MS4 outfalls. This mapping is available to the public on the City's website. Approximately 90% of the City has been inventoried to date. This inventory work will continue until the entire City has been inventoried. Data from future inspections and inventory work is intended to be used to update the existing data. Maintaining the inventory of major MS4 outfalls consists of inspections of the outfalls to evaluate the apparent condition of and the extent of dry-weather flow at each outfall. These inspections will be conducted periodically. An inventory of permitted industrial activities in each outfall's watershed will be updated periodically.

Inspection/detection program to detect dry weather flows at MS4 outfalls

The Illicit Discharge Detection and Elimination Program is conducted under the guidelines provided in the most recent version of the Public Works Department, Stormwater Management Division Standard Procedure *SW-100 Internal Illicit Discharge Detection and Elimination.* The Illicit Discharge Detection and Elimination Program has incorporated the Stormwater Management Division Standard Procedure *SW-102 Walking Stream for Illicit Discharge Detection* into its dry-weather screening process.

Employee training

Employee training on detection and reporting illicit discharges is conducted periodically to ensure that appropriate staff are able to recognize and report illicit discharges. Training may be conducted by means of electronic on-line training, classroom setting, or other means.

Provide public education

The City provides general stormwater awareness education and an introduction to the problems associated with illicit discharges and improper disposal of waste through the Public Education and Outreach Program. The City maintains educational brochures regarding illicit discharges which may be targeted for specific businesses including automobile services, food services, landscape

maintenance, and general illicit discharge prevention. These brochures can be provided to businesses when first-time violations of the Illicit Discharge Ordinance are observed by staff. Information for preventing illicit discharges and reporting illicit discharges is also provided on the City's website.

Modify, as necessary, and maintain a public reporting mechanism

The Stormwater Management Division maintains a main office phone line which serves as a reporting mechanism and Water Pollution Helpline. This phone number and a counterpart email address are publicized on the City's website and on numerous brochures and educational and promotional give-away items distributed to the public.

Establish procedures to identify and eliminate failed septic system and sanitary sewer overflows

Procedures for responding to sanitary sewer overflows, sanitary sewer leaks, and failed septic systems are outlined in the Stormwater Management Division Standard Procedure *SW-100 Illicit Discharge Detection and Elimination.*

C.3 Frequency of Best Management Practices

BMP	Frequency
a. Maintain Illicit Discharge Detection and Elimination (IDDE) Program	Ongoing
b. Maintain appropriate legal authorities	Ongoing
c. Develop a Storm Sewer System Base Map and Inventory of Major MS4 Outfalls	Ongoing
d. Maintain an inventory of Major MS4 Outfalls that discharges to waters of the State	Ongoing
e. Inspection/detection program to detect dry weather flows at MS4 outfalls	Ongoing
f. Employee training	Ongoing
g. Provide public education	Ongoing
h. Maintain a public reporting mechanism	Ongoing
i. Maintain procedures to identify and eliminate failed septic system and sanitary sewer overflows	Ongoing

C.4 Measurable Goals

BMP	Measurable Goals
a. Maintain Illicit Discharge Detection and Elimination (IDDE) Program	Ensure that proper procedures and authorities are in place to receive, respond, and enforce illicit discharges in a timely manner.
b. Maintain appropriate legal authorities	Modify, as necessary, and maintain adequate ordinances or other legal authorities to prohibit illicit discharges and enforce the approved IDDE Program.
c. Develop a Storm Sewer System Base Map and	Maintain mapping for identifying Major MS4 Outfalls and stormwater drainage system components.

BMP	Measurable Goals
Inventory of Major MS4 Outfalls	
d. Maintain an inventory of Major MS4 Outfalls that discharges to waters of the State	Maintain an inventory of Major MS4 Outfalls that discharge to waters of the State.
e. Inspection/detection program to detect dry weather flows at MS4 outfalls	Maintain written procedures for detecting and tracing the sources of illicit discharges and for removing the sources or reporting the sources to the State to be properly permitted.
f. Provide employee training	Conduct training for appropriate municipal staff on detecting and reporting illicit discharges.
g. Provide public education	Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.
h. Maintain a public reporting mechanism	Maintain and publicize reporting mechanism for the public to report illicit discharges. .
i. Maintain procedures to identify and eliminate failed septic system and sanitary sewer overflows	Maintain procedures to identify and report to the County health department failed septic systems located within City limits. Maintain procedures to identify and report sanitary sewer overflows and sewer leaks to the system operator.

C.5 Implementation Schedule

BMP	Implementation Schedule
a. Maintain Illicit Discharge Detection and Elimination (IDDE) Program	Ongoing
b. Maintain appropriate legal authorities	Ongoing
c. Develop a Storm Sewer System Base Map and Inventory of Major MS4 Outfalls	Ongoing
d. Maintain an inventory of Major MS4 Outfalls that discharges to waters of the State	Ongoing
e. Inspection/detection program to detect dry weather flows at MS4 outfalls	Ongoing
f. Employee training	Ongoing
g. Provide public education	Ongoing
h. Maintain a public reporting mechanism	Ongoing
i. Maintain procedures to identify and eliminate failed septic system and sanitary sewer overflows	Ongoing

C.6 Funding

This program is funded through the City of Raleigh Stormwater Utility.

C.7 Responsible Positions

This program responsibility is assigned among one or more of the following positions in the Public Works Department, Stormwater Management Division:

IDDE Program:
- Senior Project Engineer
- Project Engineer I
- Water Quality Technician

Appropriate legal authorities:
- Senior Project Engineer
- Project Engineer I
- Water Quality Technician
- City Attorney

Storm Sewer System Base Map and Inventory of Major MS4 Outfalls:
- Project Engineer 1
- GIS Specialists

Dry weather flow detection:
- Water Quality Technicians

Employee training:
- Project Engineer 1
- Water Quality Technician
- Public Education Specialist

Public education:
- Public Education Specialist
- Project Engineer 1
- Water Quality Technician

Public reporting mechanism:
- Administrative Assistant

Sanitary sewer overflows:
- Water Quality Technician

D. Construction Site Runoff Controls

D.1 Program Narrative

The objectives of this program are to reduce pollutants in stormwater runoff from construction activities disturbing greater than 12,000 square feet of land surface and to provide procedures for public input, sanctions to ensure compliance, requirements for construction site operators to implement appropriate erosion and sediment control practices, review of site plans, and procedures for site inspection and enforcement of

control measures. These objectives are achieved through a variety of Best Management Practices detailed below.

D.2 Best Management Practices

Erosion and Sediment Control Program

The Erosion and Sediment Control Program is delegated to the City by DENR. The City adopted an Erosion and Sediment Control ordinance, originally as part of its Development Regulations, and recodified on September 1, 2013 under the City's Unified Development Ordinance, Erosion & Sedimentation Control. These ordinances meet DENR's minimum requirements. The program is evaluated by DENR annually. The program is staffed by stormwater engineers and compliance inspectors. This group handles all plan review and field inspection responsibilities for the program.

Develop requirements for construction site operators

Requirements for construction are found in the City's Unified Development Ordinance. When approval is obtained for any land disturbing activity over 12,000 square feet, construction site operators must coordinate with the Stormwater Compliance Inspectors. The site must be maintained throughout the duration of construction. Improper or no maintenance may result in a Notice of Violation and/or a civil penalty as outlined in the Unified Development Ordinance.

Educational and training materials for construction site operators

The City intends to provide periodic training for contractors in cooperation with other local municipalities. The intent of this training is to offer contractors an overview of municipal sediment and erosion control programs and what type of requirements are associated with each.

Plan reviews

Stormwater, erosion and sediment control, and floodplain plans for new development within the City are reviewed by staff. This includes associated calculations and details for proposed stormwater devices.

Public information

Complaints received concerning active construction sites are logged into a complaint database and assigned to a Stormwater Compliance Inspector for resolution.

Inspection and enforcement procedures

City Stormwater Compliance Inspectors inspect sites for compliance with stormwater, erosion and sediment control, and floodplain aspects of approved plans.

D.3 Frequency of Best Management Practice

BMP	Frequency
a. Erosion and Sediment Control Program	Ongoing
b. Requirements for construction site operators	Ongoing
c. Educational and training materials for construction site operators	Ongoing
d. Plan reviews	Ongoing
e. Public information	Ongoing
f. Inspection and enforcement	Ongoing

D.4 Measurable Goals

BMP	Measurable Goals
a. Erosion and Sediment Control Program	Maintain program requiring erosion and sediment controls at construction sites and regulatory mechanism providing for sanctions to ensure compliance.
b. Requirements for construction site operators	Communicate and enforce requirements of construction site operators to implement erosion and sediment control BMPs and to control construction site wastes that may cause adverse water quality impacts.
c. Educational and training materials for construction site operators	Continue providing educational and training materials for construction site operators.
d. Plan reviews	Continue to review construction site plan reviews with established procedures that incorporate water quality considerations.
e. Public information	Maintain procedures for receipt and consideration of erosion and sedimentation information submitted by the public.
f. Inspection and enforcement	Maintain procedures for site inspection and enforcement of control measure requirements.

D.5 Implementation Schedule

BMP	Implementation Schedule
a. Erosion and Sediment Control Program	Ongoing
b. Requirements for construction site operators	Ongoing
c. Educational and training materials for construction site operators	Ongoing
d. Plan reviews	Ongoing
e. Public information	Ongoing
f. Inspection and enforcement	Ongoing

D.6 Funding

This program is funded by plan review fees, permit fees, and Stormwater Utility funds.

D.7 Responsible Positions

This program responsibility is assigned among the following positions in the Stormwater Management Division:

Erosion and Sediment Control Program:
- Stormwater Development Supervisor
- Stormwater Inspection Supervisor
- Stormwater Compliance Inspector

Develop requirements for construction site operators:
- Stormwater Inspection Supervisor
- Stormwater Compliance Inspector

Educational and training materials:
- Stormwater Development Supervisor
- Stormwater Inspection Supervisor

Plan reviews:
- Senior Stormwater Engineer
- Stormwater Engineer

Public information:
- Stormwater Development Supervisor

Inspection and enforcement procedures:
- Stormwater Inspection Supervisor
- Stormwater Compliance Inspector

E. Post-Construction Site Runoff Controls

E.1 Program Narrative

The objectives of this program are to: manage stormwater runoff from development that disturbs more than 12,000 square feet of land surface, provide a mechanism requiring long-term operation and maintenance of BMPs, and ensure controls are in place to minimize water quality impacts. These objectives are achieved through the application of a variety of Best Management Practices and Post-Construction Stormwater Management Program measures detailed below.

E.2 Post-Construction Stormwater Management Program Measures

The City of Raleigh implements the Neuse River Basin Nutrient (NSW) Sensitive Management Strategy [15A NCAC 2B .0251] throughout the entire planning jurisdiction of the City of Raleigh.

Water Supply Watershed IV (WS-IV) Programs [15A NCAC 2H .0216] are implemented within Reservoir Watershed Protection Areas, which are: Falls Lake watershed, Swift Creek watershed, and Richland Creek watershed.

As stated in Part II, Section F of Permit No. NCS000245, the City of Raleigh's Post-Construction Site Runoff Control Program is deemed compliant with the implementation of the above mentioned program measures.

E.3 Best Management Practices

Establish a program under the Post-Construction minimum measure to control the sources of fecal coliform to the maximum extent practicable

If a sanitary sewer overflow or sewer leak is identified, procedures outlined in Section 8.2 of the Public Works Department, Stormwater Management Division Standard Procedure *SW-100 Illicit Discharge Detection and Elimination* should be followed. If a failed septic system is located within the Raleigh City Limits, procedures outlined in Section 8.2.4 of the Public Works Department, Stormwater Management Division Standard Procedure *SW-100 Illicit Discharge Detection and Elimination* should be followed.

E.4 Frequency of Best Management Practice

BMP	Frequency
a. Maintain a program under the Post-Construction minimum measure to control the sources of fecal coliform to the maximum extent practicable	Ongoing

E.5 Measurable Goals

BMP	Measurable Goals
a. Maintain a program under the Post-Construction minimum measure to control the sources of fecal coliform to the maximum extent practicable	Maintain and revise as needed procedures to identify and report to the County health department failed septic systems located within the City's planning jurisdiction. Maintain and revise as needed procedures to identify and report sanitary sewer overflows and sewer leaks to the system operator.

E.6 Implementation Schedule

BMP	Implementation Schedule
a. Maintain a program under the Post-Construction minimum measure to control the sources of fecal coliform to the maximum extent practicable	Ongoing

E.7 Evaluation of Post-Construction Stormwater Management Program Measures for Streams Supporting Federally-listed Threatened and Endangered Aquatic Animal Species

Based on review of US Fish and Wildlife Services documentation, there are no streams supporting federally-listed threatened and endangered aquatic animal species located within the Raleigh City limits.

E.8 Funding

This program is funded by City of Raleigh Stormwater Utility Funds.

E.9 Responsible Positions

This program responsibility is assigned among the following positions in the Stormwater Management Division:

Established procedures to identify sewer overflows:
Water Quality Technician

Post-Construction Site Runoff Control Program:
Stormwater Development Supervisor

F. Pollution Prevention and Good Housekeeping for Municipal Operations

F.1 Program Narrative

The objective of this program is to reduce stormwater pollution from municipal operations. This is achieved through the application of a variety of Best Management Practices detailed below and managed through multiple departments in the City which may include but is not limited to the following:

- Fire Department
- Parks, Recreation, and Cultural Resources Department
- Police Department
- Public Utilities Department
- Public Works Department
- Solid Waste Services

F.2 Best Management Practices

Develop an operation and maintenance program

The Stormwater Management Division oversees a program for managing stormwater pollution from municipal operations with significant potential for generating polluted stormwater runoff. This may include but is not limited to municipal facilities that possess an NPDES Industrial Stormwater Permit, municipally owned streets, roads, parking lots, and vehicle and equipment cleaning operations,

Develop Stormwater Pollution Prevention Plans for municipal facilities

Stormwater pollution prevention plans (SWPPPs) will be developed and maintained for City municipal operations that have significant potential for generating polluted stormwater runoff.

Inspection and evaluation of facilities, operations, and the MS4 system and associated structural BMPs

The City Stormwater Management Division oversees implementation, inspection, and evaluation of City operations that have significant potential for generating polluted stormwater runoff

Conduct staff training

Employee training for pollution prevention and good housekeeping is conducted periodically. Training may be conducted by means of electronic on-line training, classroom setting, or other means.

Review of municipality owned or operated regulated industrial activities

Municipal facilities possessing NPDES Industrial Stormwater Permits are reviewed regularly by applicable City departments and the Stormwater Management Division.

Spill response procedures

Spill response procedures for municipal facilities owned and operated by the City with significant potential to generate polluted stormwater runoff will be included in the Pollution Prevention Plans developed for City operations.

Prevent or minimize contamination of stormwater runoff from all areas used for vehicle and equipment cleaning

Measures and actions to be taken for preventing and minimizing pollution of stormwater runoff from areas used for vehicle and equipment cleaning are identified in the SWPPP for each municipal operation.

F.3 Frequency of Best Management Practices

BMP	Frequency
a. Maintain, evaluate, and update as necessary an operation and maintenance program	Ongoing
b. Develop, maintain, review, and update as necessary SWPPPs for municipal operations that have significant potential for generating polluted stormwater runoff	Ongoing
c. Inspect and evaluate facilities, operations, and the MS4 system and associated structural BMPs	Ongoing
d. Conduct staff training for applicable municipal staff	Ongoing
e. Review municipal owned or operated regulated industrial activities	Annually
f. Review and modify as needed spill response procedures	Once per permit cycle
g. Review and modify as needed procedures to prevent or minimize contamination of stormwater runoff from areas used for vehicle and equipment cleaning	Once per permit cycle

F.4 Measurable Goals

BMP	Measurable Goals
a. Maintain an operation and maintenance program	Maintain and update as necessary an operation and maintenance program for municipal facilities owned and operated by the permittee that have significant potential for generating polluted runoff to reduce pollution.
b. Develop, review, and maintain SWPPPs for municipal facilities having significant potential for generating polluted stormwater runoff	Develop and maintain SWPPPs for municipal operations that have significant potential for generating polluted stormwater runoff
c. Inspect and evaluate municipal facilities, and associated structural BMPs	Maintain an inventory of operations owned and operated by the City with significant potential for generating polluted stormwater runoff, including the MS4 system and associated structural BMPs. Conduct inspections at operations owned and operated by the City for potential sources of polluted runoff, the stormwater controls, and conveyance systems.
d. Review and maintain spill response procedures	Review and maintain spill response procedures for municipal operations owned and operated by the City with the potential to generate polluted stormwater runoff.
e. Review and modify as needed procedures to prevent or minimize contamination of stormwater runoff from areas used for vehicle and equipment cleaning	Review and modify as needed procedures to prevent or minimize contamination of stormwater runoff from areas used for vehicle and equipment cleaning
f. Evaluate and implement BMP's for streets, roads, and public parking lots	Evaluate, and implement appropriate selected BMP's to reduce polluted runoff from municipally owned streets, roads, and parking lots.
g. Maintain an operation and maintenance program for municipally owned structural controls and storm sewer system	Maintain an operations and maintenance program for municipally owned structural stormwater controls and storm sewer system.
h. Conduct staff training	Conduct training on pollution prevention and good housekeeping procedures for appropriate staff.

F.5 Implementation Schedule

BMP	Implementation Schedule
a. Maintain, evaluate, and update as necessary operation and maintenance programs	Ongoing

BMP	Implementation Schedule
b. Review and update SWPPPs	once per permit cycle
c. Inspect and evaluate facilities, operations, and the MS4 system and associated structural BMPs	Ongoing
d. Conduct training for appropriate municipal staff	Ongoing
e. Review of municipality owned or operated regulated industrial activities	Once per permit cycle
f. Review spill response procedures	Once per permit cycle
g. Review and modify as needed procedures to prevent or minimize contamination of stormwater runoff from areas used for vehicle and equipment cleaning	Ongoing

F.6 Funding

This program involves multiple City departments and funding sources. Funding sources for this program include the General Fund, Public Utility Funds, and Stormwater Utility Funds.

F.7 Responsible Positions

This program may involve multiple City departments, which may include but is not limited to the following:

Fire Department:
- Battalion Chief/Training

Parks, Recreation, and Cultural Resources Department:
- Training Program Supervisor
- Safety Officer

Police Department:
- Training Officer

Public Utilities Department:
- Assistant Public Utilities Director
- Superintendent, Water Treatment Plants
- Superintendent, Wastewater Treatment Plants
- Reuse Superintendent
- Superintendent, Water Distribution
- Superintendent, Sewer Maintenance
- Construction Superintendent

Public Works Department:
- Street Maintenance Division, Program Manager
- Stormwater Management Division, Water Quality Engineer

Solid Waste Services:
- Safety Coordinator

G. Public Education and Outreach

G.1 Program Narrative

The objectives of this program are to make educational materials available to the community, conduct public outreach activities, raise public awareness on the causes and impacts of stormwater pollution, and inform the public on actions they can take to reduce or prevent stormwater pollution. This is achieved through a variety of Best Management Practices detailed below.

G.2 Best Management Practices

Identify target pollutants and target pollutant sources

The Stormwater Management Division identifies target pollutants during the first year of each permit cycle. For the 2013 – 2018 permit cycle, the target pollutants are nutrients, pathogens as indicated by fecal coliform bacteria, sediment, and copper. The City may elect to add other pollutants as target pollutants. Target pollutant sources include atmospheric deposition, fertilizers, sanitary sewer leaks and overflows, wild and domestic animal waste, construction project sites, stream bank erosion, vehicle brake pads, and general urban stormwater runoff.

Identify target audiences

Many of the pollutant sources will lead to wide ranging audiences including residents, businesses, and construction sites as an emphasis for sediment control.

Informational web site

The City maintains an informational website with a specific section devoted to Stormwater and Drainage, which provides information such as web pages for the drainage inventory program, flood maps and floodplain mapping information, specific Capital Improvement Projects, illicit discharge notification, water quality monitoring, real-time USGS river data, and volunteer programs. The City also is a partner in the Clean Water Education Partnership (CWEP), facilitated by the Triangle J Council of Governments. The CWEP manages and updates a general stormwater education website available at http://www.nccleanwater.org/ that provides a variety of information, including: sources and effects of stormwater pollution; how residents and business owners can help prevent pollution; information specifically for businesses, students, and teachers; and outreach materials including television public service announcements, radio public service announcements, and print advertisements.

Develop and distribute public education materials to identified user groups

The City has developed a general stormwater awareness brochure targeted for homeowners through CWEP. This brochure educates homeowners on the sources and causes of stormwater pollution and offers measures for preventing pollution around the home. This brochure is distributed to residents at community events and is posted on the CWEP website. The City also has developed illicit discharge educational brochures. These brochures can be provided to offenders when first-time violations of the Illicit Discharge Ordinance are observed by staff.

Media campaign

The City is a partner in CWEP. Partners of CWEP pay annual dues that together fund a large scale multi-media campaign including television public service announcements, radio public service announcements, and a stormwater informational website at http://www.nccleanwater.org. In addition, the City manages Raleigh Television Network, which airs stormwater educational programs that also are available on the City's website for the Raleigh Television Network, which also offers live streaming video.

Establish hotline/helpline

The main phone number for the City's Stormwater Management Division serves as the reporting mechanism for water pollution. Off hour and weekend calls are routed through the 911 system.

Maintain a public education and outreach program

The following elements are included in the City's Public Education and Outreach Program:

Press releases
Targeted direct mail
Utility bill inserts
Public meetings
Community events
Storm drain marking program
Adopt-a-stream program
Volunteer water quality monitoring program
Presentations to volunteer groups and school groups
News coverage
Workshops and classroom outreach
Promotional giveaways
Distribute brochures
Local cable access TV (Raleigh Television Network)
Newsletters to volunteer groups

G.3 Frequency of Best Management Practice

BMP	Frequency
a. Identify target pollutants and target pollutant sources	Once per permit cycle
b. Identify target audiences	Once per permit cycle
c. Maintain informational web site	Ongoing
d. Distribute public education materials to identified user groups	Ongoing
e. Media campaign	Ongoing
f. Maintain hotline/helpline	Daily
g. Maintain a public education and outreach program	Ongoing

G.4 Measurable Goals

BMP	Measurable Goals
a. Review target pollutants and target pollutant sources	Review target pollutants and target pollutant sources.
b. Review target audiences	Review the target audiences likely to have significant stormwater impacts.
c. Maintain informational web site	Maintain an internet web site.
d. Update, develop and distribute public education materials to identified user groups	Develop general stormwater educational material to appropriate target groups likely to have a significant stormwater impact.
e. Implement and document media campaign	Evaluate campaign reach and frequency for each education and outreach media, (including those elements implemented locally or through a cooperative agreement).
f. Maintain hotline/helpline	Maintain the stormwater hotline/helpline.
g. Maintain a public education and outreach program	The City's outreach program, including those elements implemented solely by the City or through a cooperative agreement, may include but are not limited to the following: • Press releases, newspaper articles and/or paid advertisement (i.e., inserts) • Kiosks and signage • Targeted direct mail • Displays at the point-of purchase • Utility bill inserts • Public meetings • Community events • Contest • Storm drain marking • Stream and litter cleanups • Group presentation and/or speeches • News coverage • Workshops and class room outreach • Distributing promotional giveaways and specialty items • Brochures, displays, signs, welcome packets, and pamphlets • Local cable access • Newsletters

G.5 Implementation Schedule

BMP	Implementation Schedule
a. Review target pollutants and target pollutant sources	First year of permit cycle (2013)
b. Review target audiences	First year of permit cycle (2013)
c. Maintain Informational web site	Ongoing
d. Update, develop and distribute public education materials to identified user groups. For example, schools, homeowners, and/or businesses.	Ongoing
e. Implement and document media campaign	Ongoing
f. Maintain hotline/helpline	Daily
g. Maintain a public education and outreach program	Ongoing

G.6 Funding

This program is funded by City of Raleigh Stormwater Utility Funds.

G.7 Responsible Positions

This program responsibility is assigned among the following positions in the Stormwater Management Division:

Identify target pollutants and sources:
- Senior Project Engineer
- Project Engineer I

Identify target audiences:
- Senior Project Engineer
- Project Engineer I
- Public Education Specialist

Informational web site:
- Public Education Specialist
- Project Engineer I

Develop and distribute public educational materials:
- Public Education Specialist
- Water Quality Technician
- Project Engineer I

Media campaign:
- Public Education Specialist
- Project Engineer I

Hotline/helpline:
- Administrative Assistant

Public education and outreach program:
- Public Education Specialist
- Project Engineer I

Water Quality Technician

H. Program to Monitor and Evaluate Stormwater Discharges to Municipal Systems

H.1 Program Narrative

The objective of this program is to monitor and control pollutants in stormwater discharges to Raleigh's Municipal Separate Storm Sewer System (MS4) from industrial facilities that have been determined to contribute or have potential to contribute substantial pollutant loading to the MS4, including the following types of facilities: hazardous waste treatment, storage, disposal, and recovery facilities; industrial facilities subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA); and City municipal operations. This is achieved through a variety of Best Management Practices detailed below.

H.2 Best Management Practices

Maintain an inventory of industrial sites

Each permit cycle, the latest data obtained from DENR and other sources will be used to identify new and existing industrial facilities described in Section H.1. Since new industrial facilities are required to obtain a permit from the State and to notify the local government if they discharge to the MS4, these notifications will be used to update the list of facilities between permit cycles.

Inspection Program

The facilities described in Section H-1will be inspected at least once per permit cycle. Higher priority sites will be targeted for more frequent inspections.. Sites demonstrating significant non-compliance will be reported to the permitting authority. Appropriate enforcement action will be taken for non-permitted sites demonstrating significant non-compliance.

Establish and Implement Evaluation Measures

Industrial sites within the City's jurisdiction, as described in section H.1, will be evaluated using a checklist developed by City staff. Those sites demonstrating significant non-compliance will be reported to the permitting authority or appropriate enforcement action taken for non-permitted sites where non-compliance is determined. Where compliance with an existing industrial stormwater permit does not result in adequate control of pollutants to the MS4, City staff will recommend and document the need for permit modifications or additions to the permit issuing authority.

H.3 Frequency of Best Management Practices

BMP	Frequency
a. Maintain an inventory of industrial sites	Annually
a. Inspection program	Once per permit cycle
b. Establish and implement evaluation measures	Once per permit cycle

H.4 Measurable Goals

BMP	Measurable Goals
a. Maintain an inventory of industrial sites	Maintain an inventory of permitted hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and commercial or industrial facilities identified with an industrial activity permitted to discharge stormwater to the City's MS4 or identified as an illicit discharge under the IDDE Program. For the purposes of this permit, industrial activities shall mean all permitted industrial activities as defined in 40 CFR 122.26.
b. Review, modify as necessary, and implement an inspection program	Review, modify as necessary, and implement inspection procedures at least once per permit cycle.
c. Review, modify as necessary, and implement evaluation measures	For those commercial and industrial facilities identified above, Review, modify as necessary, and implement appropriate measures to control pollutants in storm water discharges to the City's MS4 . For permitted facilities, the municipality will report deficiencies and non-compliance to the permitting agency and will take appropriate enforcement action taken for non-permitted sites where non-compliance is determined. Where compliance with an existing industrial stormwater permit does not result in adequate control of pollutants to the MS4, the City will recommend and document the need for permit modifications or additions to the permit issuing authority.

H.5 Implementation Schedule

BMP	Implementation Schedule
Maintain an inventory of industrial sites	Ongoing
Inspection program	Ongoing
Establish and implement evaluation measures	Ongoing

H.6 Funding

This program is funded by City of Raleigh Stormwater Utility Funds.

H.7 Responsible Positions

This program responsibility is assigned among the following positions in the Stormwater Management Division:

Maintain an inventory of industrial sites:
Senior Project Engineer
Project Engineer I
Water Quality Technician
Inspection program:
Water Quality Technician
Maintain evaluation measures:
Project Engineer I
Water Quality Technician

I. Water Quality Assessment and Monitoring

I.1 Program Narrative

The objective of this program is to assess the status of and changes in water quality of water bodies in Raleigh. This is achieved through the application of a variety of Best Management Practices detailed below.

I.2 Best Management Practices

Water Quality Assessment and Monitoring Plan

The City of Raleigh has developed a *Water Quality Assessment and Monitoring Plan* that identifies monitoring locations, a monitoring schedule, monitoring parameters, sample data analysis, and data evaluation and assessment.

Water Quality Monitoring

Monitoring locations are included in the City of Raleigh *Water Quality Assessment and Monitoring Plan* to characterize water quality conditions within major watersheds in the City's jurisdiction. Water quality samples are analyzed on a regular basis for various parameters that typically include: bacteria, total phosphorus, turbidity, total suspended solids, total Kjeldahl nitrogen, nitrate + nitrite, ammonia nitrogen, copper, zinc, dissolved oxygen, conductivity, pH, and temperature.

Revisions to the Water Quality Assessment and Monitoring Plan

The City reviews the plan at least once per permit cycle to determine whether revisions to the plan are warranted. .

I.3 Frequency of Best Management Practices

BMP	Frequency
a. Water quality assessment and monitoring plan	Ongoing
b. Water quality monitoring	Quarterly
c. Review the Water Quality Assessment and Monitoring Plan and revise as needed	Once per permit cycle

I.4 Measurable Goals

BMP	Measurable Goals
a. Water Quality Assessment and Monitoring Plan	Maintain and revise as necessary a Water Quality Assessment and Monitoring Plan.
b. Water quality monitoring	Conduct regular water quality monitoring to assess local water quality.
c. Review the Water Quality Assessment and Monitoring Plan and revise as needed	Maintain and revise the Water Quality Assessment and Monitoring Plan as appropriate.

I.5 Implementation Schedule

BMP	Implementation Schedule
a. Maintain Water Quality Assessment and Monitoring Plan	Ongoing
b. Water quality monitoring	Ongoing
c. Review the Water Quality Assessment and Monitoring Plan and revise as needed	Once per permit cycle

I.6 Funding

This program is funded by City of Raleigh Stormwater Utility Funds.

I.7 Responsible Positions

This program responsibility is currently divided among several positions in the Stormwater Management Division:

Water Quality Assessment and Monitoring Plan:
- Senior Project Engineer
- Project Engineer
- Water Quality Technician

Water quality monitoring:
- Water Quality Technician

Revisions to the Water Quality Assessment and Monitoring Plan:
- Senior Project Engineer
- Project Engineer

J. Water Quality Recovery Program

J.1 Program Narrative

Section J of Part II of the Permit specifies that a Water Quality Recovery Program (WQRP) be established for streams for which a Waste Load Allocation (WLA) has been assigned to the City's stormwater as part of an approved Total Maximum Daily Load (TMDL). Pigeon House Branch, Perry Creek, and Swift Creek have been assigned TMDLs. Individual WLAs have not been assigned to the City's discharge of stormwater to these streams.

The TMDL for Pigeon House Branch (EPA approved 8/18/2003) states that DENR has not attempted to separate NPDES-regulated stormwater from non-NPDES-regulated stormwater. Additionally, with no WLA for this watershed, there is no distribution of a WLA among the several NPDES MS4 permit holders with jurisdiction over portions of the Pigeon House Branch watershed. These NPDES stormwater permit holders include the City of Raleigh, NCDOT, and Wake County. There also are other NPDES MS4 entities in this watershed that have not been issued NPDES permits nor been assigned a portion of a WLA. These entities include North Carolina State Government, North Carolina Railroad, and the United States Government.

The TMDL for Perry Creek (EPA approved 5/13/2010) also states that DENR has not attempted to assign individual WLAs among the several NPDES MS4 permit holders in the watershed, including the City of Raleigh, NCDOT, and Wake County. There also are other NPDES MS4 entities in this watershed that have not been issued NPDES permits nor been assigned an individual WLA, including the North Carolina Railroad and the United States Government.

The TMDL for Swift Creek (EPA approved 3/12/2009) also states that DENR has not attempted to assign individual WLAs among the several NPDES MS4 permit holders in the watershed, including the City of Raleigh, NCDOT, and Wake County. There also are other NPDES MS4 entities in this watershed that have not been issued NPDES permits nor been assigned an individual WLA, including the North Carolina Railroad and the United States Government.

J.2 Best Management Practice

In lieu of a WQRP, Raleigh continues to evaluate, tailor, and implement a number of BMP's to address TMDL listed streams within its corporate limits. These may include but are not limited to the following:

- Application of the 6 minimum permit measures to reduce pollutant loading
- Watershed studies to identify potential pollutant sources as well as sites for stream restoration, stream stabilization, and structural stormwater retrofits
- Prioritized inspection for IDDE and enforcement
- Additional monitoring to identify hot spots and potential sources of pollution including bacterial source tracking
- Prioritized funding for BMP retrofits on City property
- Prioritized funding for BMP retrofits on private property through the City's Stormwater Quality Cost Share Program
- Sanitary sewer line inspection
- Sanitary sewer line rehabilitation
- Application of higher level water supply watershed rules within the Swift Creek Basin
- Application of Nutrient Sensitive Waters Rules for all TMDL watersheds

K. Threatened or Endangered Species

K.1 Program Narrative

Section K of Part II of the Permit specifies that site-specific stormwater management requirements be incorporated into the Stormwater Plan for streams that support federally-listed threatened or endangered aquatic species where those site-specific requirements have been developed under provisions of 15A NCAC 2B .0110. Based on a review of US Fish and Wildlife Service information on threatened and endangered species, no site-specific stormwater management requirements have been developed for locations within the City's jurisdiction.

K.2 Best Management Practice

There currently are no site-specific stormwater management requirements for endangered or threatened aquatic species. Stormwater throughout the City's jurisdiction is managed through application of the Neuse River Basin Nutrient Sensitive (NSW) Management Strategy and through Water Supply Watershed IV (WSW-IV) regulations where applicable.

III. Program Assessment

Implementation of this Stormwater Plan will be documented. Components of documentation will include inspections, maintenance activities, educational programs, monitoring and sampling, implementation of BMPs, enforcement actions, and other stormwater activities. Documentation will be kept on-file for at least five years and made available to DENR upon request.

The Stormwater Plan will be reviewed and updated as necessary on an annual basis. The City will submit a report of the Stormwater Plan evaluation and monitoring information to DENR. The annual report will include describe the progress, status, and results of implementing the Stormwater Plan and will include the following components:

1. Description of the status of implementation of the Stormwater Plan, by plan component, for the reporting year and schedules and plans for the year following.
2. Description and justification of proposed changes to the Stormwater Plan, including supporting information for how changes will impact the Stormwater Plan.
3. Document changes to programs or practices for assessing management measures implemented through the Stormwater Plan, including changes in the cost of, or funding for, the Stormwater Plan.
4. Provide a summary of data accumulated as part of the Stormwater Plan throughout the year.
5. Provide information on annual expenditures and budget anticipated for the year following and an assessment of continuing financial support for the overall Stormwater Plan.
6. Provide a summary of activities undertaken as part of the Stormwater Plan throughout the year, including revisions or establishment of appropriate legal authorities, project assessments, inspections, enforcement actions, continued inventory and review of the stormwater drainage system, education, training, and results of the IDDE program.
7. Provide information pertaining to areas of water quality improvement or degradation, based on pilot studies, individual projects, or on a watershed or subwatershed basis.

IV. Reporting and Record Keeping

A. Records

The City will retain records of monitoring information and copies of reports required by this Permit for at least five years from the date of the sample, measurement, report, or application.

B. Recording Results

The City will record the following information for each measurement, sample, inspection, or activity performed or taken pursuant to the Stormwater Plan:

- The date, location, description, and time of the sampling, measurements, inspection, or activity.
- The individual(s) who performed the sampling, measurements, inspection or activity.
- The date(s) analyses performed.
- The individual(s) who performed analyses.
- The analytical techniques or methods used.
- The results of analyses.

C. Annual Reporting

As described in Part III, the City will submit an annual report to DENR that tracks progress in implementing the Stormwater Plan.

D. Twenty-Four Hour Reporting

The City will report to the state discharges that reach waters of the state and constitute an imminent threat to health or the environment. The City will make the report within 24 hours of becoming aware of the discharge. During business hours, reports will be by phone or by email to DENR's regional office. Outside business hours, reports will be by phone or email to the North Carolina Division of Emergency Management State Operation Center hotline. If DENR so requests, the City will submit a written report about the discharge to the DENR regional office.